



# **SIDAC**

Supportability Investment Decision Analysis Center

Contract No. F33657-92-D-2055/0063  
CDRL A001, Data Item DI-MISC-80508  
Report No. SID/TR-95/0336

## **SID12402**

(Unclassified)

### **TECHNICAL REPORT — STUDY SERVICES**

for

**WSPAR, SEMR, POM, and  
HQ USAF/LG Logistics  
Assessment Programs,  
Phase II**

Prepared for

HQ USAF/LGSI  
1030 Air Force Pentagon  
Washington, DC 20330-1030

20 September 1995

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FOR THE COMMANDER

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1213 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget. Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 20 September 1995	3. REPORT TYPE AND DATES COVERED Technical Report/Study Services		
4. TITLE AND SUBTITLE  Technical Report/Study Services for WSPAR, SEMR, POM, and HQ USAF/LG Logistics Assessment Programs, Phase II		5. FUNDING NUMBERS  Contract No. F33657-92-D-2055  Delivery Order No. 0063		
6. AUTHOR(S)  Gorman, Jennifer A.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(S)  Synergy, Inc. 1763 Columbia Rd, NW Washington, DC 20009		8. PERFORMING ORGANIZATION REPORT NUMBER  SID/TR-95/0336		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)  HQ USAF/LGSI 1030 Air Force Pentagon Washington, DC 20330-1030		10. SPONSORING/MONITORING AGENCY REPORT NUMBER  SID 12402		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT  Approved for Public Release; Distribution is Unlimited			12b. DISTRIBUTION CODE  A	
13. ABSTRACT (Maximum 200 words)  This technical report contains the final project report for WSPAR, SEMR, POM, and HQ USAF/LG Logistics Assessment Programs, Phase II.				
14. SUBJECT TERMS  Weapon System Program Assessment Review (WSPAR), Sustainment Executive Management Report (SEMR), Program Object Memorandum (POM)			15. NUMBER OF PAGES 8	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT	

Contract No. F33657-92-D-2055  
SIDAC Task Number 99, Delivery Order No. 0063  
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## **Technical Report/Study Services**

**for**

### **WSPAR, SEMR, POM, and HQ USAF/LG Logistics Assessment Programs, Phase II**

The Weapon System Program Assessment Review (WSPAR), Sustainment Executive Management Report (SEMR), and Program Objective Memorandum (POM) Logistics Assessment Programs provided analysis at the Pentagon for HQ USAF/LGSI. The major weapon systems in the Air Force (A-10, B-1B, B-52, C-5, C-130, C-141, E-3, F-15, F-16, F-111, F-117, KC-10, KC-135, SOF Helo, and Fixed Wing) are required to report their health approximately once every 18 months, sometimes every 12 or 15 months. The System Program Director (SPD) is required to report the capability of the weapon system to perform its peacetime and wartime missions.

The WSPAR process uses information supplied by the various offices in the Pentagon, at the major commands (MAJCOMs) and also at the SPD location. The source of the information Synergy, Inc., collects and provides to the SPD are offices within the Pentagon. Specifically, those offices are LGSY, XOXW, XOFC, XOFU, XORM, XOFM, and XOFP. Not all of the XO offices are used for every weapon system.

LGSY supplies Synergy with the Repairable Spares Division (RSD), System Support Division (SSD), and Initial Spares requirement and funding numbers after coordination with HQ AFMC/FM. These numbers are then entered into the Funding Availability Multi-Method Allocator for Spares (FAMMAS) model. A Reliability and Maintainability Information System (REMIS) pull is made for the most recent mission capable (MC) Rate, Total Not Mission Capable for Supply (TNMCS), and Not Mission Capable for Maintenance (NMCM). These numbers, as well, are entered into the FAMMAS model for the major weapon systems in the Air Force. The FAMMAS model uses the programmed requirement and funding numbers with the current MC Rate information to project a MC Rate 4 years into the future. Air Force-established lead times for arrival of parts (depot-level repairable) to support a weapon system are also used to project as accurately as possible. Currently, the model uses a simple trend analysis for NMCM, but determines a TNMCS rate based on the relationship between funding and MC Rate in the base year. The base year is determined by the last year with complete funding and MC Rate information available. For the current year 1995, the base year is 1994. The final outputs of the FAMMAS model are the projected MC Rate, comprised of the projected TNMCS and the NMCM, and the delivered funding. The delivered funds are the dollars the weapon system will actually receive in that fiscal year. These outputs help provide the SPD with a tool for assessing the capability of the weapon system to perform its peacetime missions. The outputs are also the starting position the weapon system assumes for its wartime capability assessments.

The wartime assessments are performed using the Logistics Assessment Model for Windows (WINLAM). A majority of the inputs are provided by the XO community at the Air Staff. The office supplying the information depends on what type of aircraft is being assessed. The sortie based aircraft (A-10, B-1B, B-52, C-130, E-3, F-15, F-16, F-111, F-117, KC-10, KC-135, and SOF Helo, and Fixed Wing) use the portion of WINLAM called the Tactical Logistics Assessment Model (TLAM). The information required to perform an assessment on these weapon systems consists of, but is not limited to, the War Mobilization Plan Books 3 and 5 (WMP-3 and 5), Force Structure projections, and the Defense Planning Guide (DPG). After collecting this information for each weapon system, the data are then entered into TLAM along with the output from FAMMAS. TLAM then plots a required sorties line based on the number of aircraft assigned to a theater and the required sortie rate. Then the maximum capability line is plotted against the required line. The maximum line is derived from the MC Rate by day, the number of aircraft assigned to a theater, and the maximum turn rate. If the maximum line is above the required line, the aircraft can perform all of its requirements and have some additional surge capability leftover. The additional surge can be used only if the days prior were flown at the required level. If the maximum line is below the required line, the aircraft is not capable of performing all of its wartime requirements. There are a multiple of possible reasons for this failure to perform.

Other factors affecting the maximum line may be causing the line to dip below the required line. One possibility is the result of a large number of aircraft in depot status. This could cause the number of aircraft in the fleet scheduled to be sent to theater to be more than the number of aircraft actually available. Another possible cause for losing sorties (when maximum is below required) is the MC Rate. If the starting MC Rate from the FAMMAS model is not high enough to endure daily degradation, the weapon system will not sufficiently perform its missions.

Another factor that affects the output of the WINLAM model is the delta of the RSD Buy requirement in conjunction with the Gross Readiness Spares Package (RSP), which determines the amount of funding available to support the wartime kits. If this percentage is low enough, varies for each weapon system, then losses may occur. These are some of the possible results for the maximum line to fall below the required line, causing lost sorties and ultimately leaving a wartime assessment of not being able to accomplish 100 percent of the weapon systems requirements.

For the other major weapon systems in the Air Force (C-5 and C-141) that are flying-hour based instead of sortie-based, the Airlift Logistics Assessment Model (ALAM) portion of WINLAM is applied. This model uses many of the same theories as TLAM, but the inputs are slightly different. Airlift factors such as one-way channel distance, critical leg distance, on/off load times, service time, etc., are considered. These data are obtained from AF Pamphlet 76-2. Also, the aircraft's wartime theater designation is driven by a document

called the Joint Strategic Capability Plan (JSCP). The major difference between the output of TLAM and ALAM is the presentation of information. TLAM shows all theaters separately and ALAM aggregates all theaters into one picture.

Both models are parametric-based models. Both use a recovery function that allows for a supply line to be opened to the wartime theaters a determined number of days after the conflict begins. Prior to this resupply, the aircraft has only its RSP for parts.

During this task order, the aircraft that went through the WINLAM process were: B-52, C-141, KC-10, KC-135, T37/38, Helo SOF, F-100, E-3, F-111, Fixed Winged SOF, C-5, F-117, F-16, and F-15.

All SPDs are required to submit a SEMR twice per fiscal year. The first report is due in January and the second in July.

Currently, Synergy is responsible for supplying a majority of the reporting data to the SPDs. The sources of these data are the Air Staff and outside sources. Within the Air Staff, XOOOR provides Status of Resources and Training System (SORTS) data, LGSY provides FAMMAS and Automated Budget Analysis Interactive Data Environment System (ABIDES) numbers, and the XO community provides the necessary inputs for the WINLAM assessments that apply to the SEMR. Outside of the Air Staff, the Reliability and Maintainability Information System (REMIS) provides MC Rates and Standard Base Supply System (SBSS) provides Cannibalization (CANN) rates. The MAJCOMs supply the SPD with break rates and the SPDs access their own databases for the necessary depot data.

The SEMR model is not a functional model but an Executive Information System (EIS). The model does not contain any calculations or projections internally. For example, once the report leaves the SPD and goes to HQ AFMC, the SPD's analysis cannot be altered. Those outside of the SPD office may comment on the assessment but cannot change the original assessment. An important fact about the model is that, although all systems in the Air Force are required to submit a SEMR, not all of the systems are currently incorporated in the automated SEMR tool.

The January FY95 SEMR was the first reporting period to use the automated SEMR model. After the final reports were complete, a jointly sponsored SEMR Summit conducted by Air Staff and HQ AFMC was held at Synergy. All of the participants in the automated SEMR were invited to give feedback on this reporting tool. The meeting yielded many positive results. The praise for the Air Staff and HQ AFMC for recognizing the need for a tool such as the one Synergy built were bountiful and a constant message throughout the 3-day



meeting. The suggestions for improvements were beneficial to participants as well as sponsors. Most participants were thankful to be able to hear what their peers had to say about the tool. Some of the suggestions for improving the tool were implemented prior to the July FY95 reporting cycle. Those Air Force systems included in the automated SEMR for January FY95 were: B-52, C-141, KC-10, KC-135, T37/38, Helo SOF, F-100, E-3, F-111, Fixed Winged SOF, C-5, F-117, F-16, F-15, A-10, B-1, B-2, HC-130, C-9, C-17, C-130, EF-111, RC-135, RF-4, E-4, E-8, U-2, EC-130, and EC-135.

The POM completed during this task order was for FY96 and FY01. Synergy was responsible for providing the analysis to HQ USAF/LGSI for two charts in the POM report. The data and tools used to perform the assessments were the same as in the WSPAR. The weapon systems were the major weapon systems in the Air Force only. The data sources were the same for collecting the information for the WSPAR. The outputs from WINLAM, however, were presented in a different format.

Two charts assessing two aspects of the weapon systems are required for a POM assessment. Before the analyses can begin, however, the POM requires that the aircraft be grouped according to Air Staff direction. The groupings include most of the major weapon systems in the Air Force inventory (A-10, B-1B, B-52, C-5, C-130, C-141, E-3, F-15, F-16, F-111, F-117, and KC-135). This requires the aggregation of several aircraft's data after the WINLAM outputs have been completed.

When the first assessment was completed, Synergy was required to analyze the percent of the required sorties or hours to fly and the actual number of sorties or hours flown based on the different groupings of the aircraft. Once that chart was finished, attached to it was the text to explain why the chart yielded those particular results. A text explanation was also attached to the second chart required for the POM. This chart depicted the weapon systems levels of surge at different periods throughout the various conflicts and the number of aircraft flying at those particular rates.

It was after the FY94 POM assessments that HQ USAF/LGSI agreed to incorporate a POM module in WINLAM. The significant factor in preparing the POM assessments is the time required to aggregate the data of the various weapon systems into their proper groups. The FY95 POM was completed using this new aggregation tool.

Once the results were completed, they were coordinated through HQ USAF/LGSI, HQ USAF/LGSY, and HQ USAF/LGMY. Any changes in data were cause for a rerunning of the POM assessment by Synergy. The final version of the charts were released on 1 June 1994. The final POM was published in late June by the Secretary of Defense.

A majority of the data and results of these various assessments done by Synergy are classified SECRET. The WSPAR is not 100 percent SECRET, but the portion that is provided to the SPDs by Synergy is classified. Overall, the SEMR report is classified SECRET, and 40 percent of the information Synergy provided to the SPDs is classified SECRET. The two charts Synergy provided for the POM and approximately 75 percent of the data from which the charts were derived are classified SECRET. An unclassified example of the outputs of the FAMMAS model, WINLAM, and the SEMR tool may be provided, if necessary. However, if the specific results of these assessments need to be reviewed, they may be mailed through the proper channels with approval from the proper authorities. The models themselves may also be provided upon request. The models as they currently exist are not classified until current and future data are inputted. Thus, the models with the demonstration data may be installed any on desktop PC in any area .

## Appendix — Office Symbols

<u>Office Symbol</u>	<u>Division</u>
LGSI	Programs and Analysis Division
LGMY	Weapons System Division
LGSY	Aircraft and Missile Support Division
XOXW	War and Mobilizations Plans Division
XOFC	Combat Forces Division
XOFU	Special Operations Division
XORM	Mobility Training and Special Operations Requirements Division
XOFM	Mobility Forces Division
XOFP	Force Programming Division